Weather Beater Electronic Control System (WBECS)
Natural Gas Installation Kit
Owner's Operation and Installation Manual

ARCHPOT
ARCHITECTURAL SITE FURNISHINGS

ARCHPOT
508 Bateman Circle
Corona, CA 92880

Phone: (714) 895-3359
www.archpot.com

⚠ WARNING: FOR OUTDOOR USE ONLY!

CARBON MONOXIDE HAZARD

This appliance can produce carbon monoxide, which has no odor.
Using it in an enclosed space can kill you.
Never use this appliance in an enclosed space such as a camper, tent, or home.

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Read the installation, operating and maintenance instructions thoroughly prior to installing or servicing this equipment.

WARNING: Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WARNING: A propane cylinder not connected for use shall not be stored in the vicinity of this or any other appliance.

WARNING: For use with Natural or Propane gas only. NO SOLID FUELS TO BE USED WITH THIS SYSTEM.

FOR YOUR SAFETY

IF YOU SMELL GAS:

1. **Shut off gas to appliance.**
2. **Extinguish any open flame.**
3. **If odor continues, keep away from appliance and immediately call your gas supplier or fire department.**

CALIFORNIA PROPOSITION 65

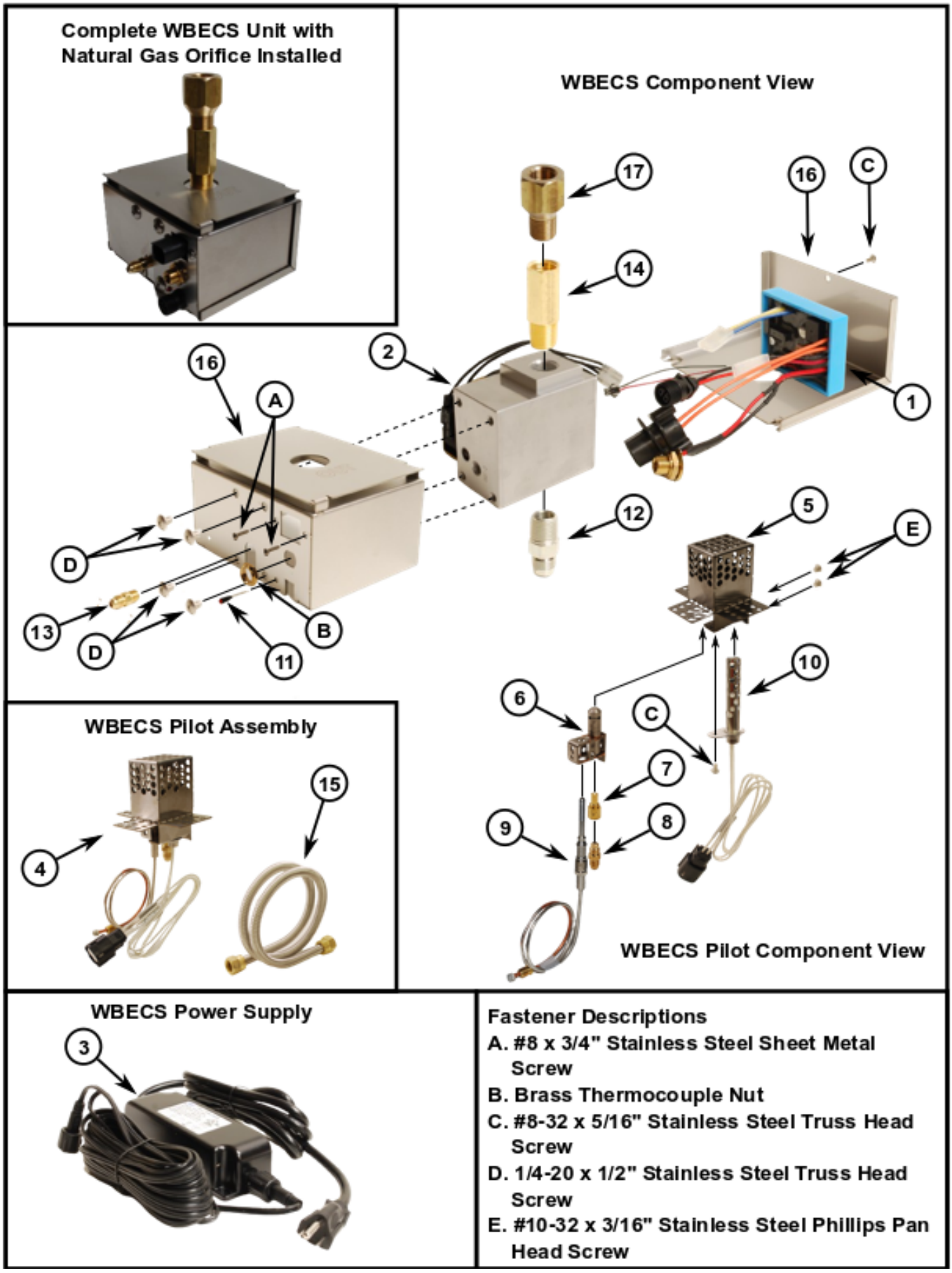
WARNING

This product can expose you to Chromium, which is known to the state of California to cause cancer and birth defects or other reproductive harm. (For further information, please visit website: www.p65warnings.ca.gov)

Installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1 / NFPA 54, or International Fuel Gas Code.*

The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the *National Electric Code, NFPA 70*, if applicable.

INSTALLER: Leave this manual with the appliance.
CONSUMER: Retain the manual for future reference.



WBECS COMPONENT DIAGRAM

WBECS DIAGRAM REFERENCE TABLE

<table>
<tr><th>No.</th><th>Description</th><th>Notes</th><th>Certification</th></tr>
<tr><td>1</td><td>Ignition Control Module</td><td>Potted to protect against moisture and damage.
Operational Temperature Range = -20°F-175°F
Max Supplied Voltage= 13.2 VDC</td><td>CSA ANSI Z21.20-2014</td></tr>
<tr><td>2</td><td>Valve Manifold</td><td>Water resistant encapsulated coils.
Water resistant connectors.
Max Pressure = 1/2 PSI
Operational Temp Range =-20-175°F
Max BTU
FT-WBECS-DCS: 125K
FT-WBECS-DCM: 350K
FT-WBECS-DCL: 519K
FT-WBECS-DCHL: 197K</td><td>CSA 229521-1656058</td></tr>
<tr><td>3</td><td>Power Supply</td><td>Includes 30 feet plug and play cable.
Power Input is rated at 100-240VAC, 50/60Hz, 1.3 Amps
Power Output Rating: 13 VDC, 5 Amp (65 Watt)
Power wire connector is waterproof.
Meets NFPA 70 (NEC) requirements for installation within 5 feet of water.</td><td>NFPA 70/NEC Article 680 compliant</td></tr>
<tr><td>4</td><td>Pilot Assembly</td><td>Pilot has robust, wind resistant flame pattern.</td><td rowspan="17"></td></tr>
<tr><td>5</td><td>Pilot Cage</td><td>Stainless steel for heat and corrosion resistance.</td></tr>
<tr><td>6</td><td>2 Flame Pilot</td><td>Stainless steel for heat and corrosion resistance.</td></tr>
<tr><td>7</td><td>Pilot Orifice</td><td>Pilot Orifice Size
<table>
<tr><th></th><th>Liquid Propane</th><th>Natural Gas</th></tr>
<tr><td>Standard</td><td>#21</td><td>#25</td></tr>
<tr><td>High BTU</td><td>#25</td><td>#39</td></tr>
</table>
Brass for corrosion resistance.</td></tr>
<tr><td>8</td><td>Pilot Adapter Nut</td><td>Adapter from 7/16-11 45° Flare to 7/16-18 45° Flare
Brass for corrosion resistance.</td></tr>
<tr><td>9</td><td>Thermocouple</td><td>Fast responding flame sense resistant to wind, moisture, and corrosion.
Nickel plated for durability.</td></tr>
<tr><td>10</td><td>Hot Surface Igniter (HSI)</td><td>Provides stable burner ignition in harsh conditions.
Shielded with a protective cage.
Connection is waterproof.</td></tr>
<tr><td>11</td><td>LED</td><td>Diagnostics for field service and troubleshooting.
Note: Blinking under standard conditions does not indicate an error. LED will blink as part of its standard operating procedure. When an error occurs, flashing will be consistent in a repeated blink pattern.</td></tr>
<tr><td>12</td><td>Inlet Adapter</td><td>FT-WBECS-DCS= 1/2” JIC 45° Flare to 3/8” MPT
FT-WBECS-DCM= 1/2” JIC 45° Flare to 1/2” MPT
FT-WBECS-DCL= 1” JIC 45° Flare to 3/4” MPT
FT-WBECS-DCHL= 1/2" JIC 45° Flare to 3/4” MPT
Galvanized steel for heat and corrosion resistance.</td></tr>
<tr><td>13</td><td>Pilot Valve Outlet Nut</td><td>1/8” JIC 45° Flared Fitting
Brass for corrosion resistance.</td></tr>
<tr><td>14</td><td>Main Valve Outlet Adapter</td><td>FT-WBECS-DCS= 2-1/2” long 1/2” Female to 3/8” Male NPT Fitting
FT-WBECS-DCM= 2-1/2” long 1/2” Female to 1/2” Male NPT Fitting
FT-WBECS-DCL= 2-1/2” long 3/4” Female to 3/4” Male NPT Fitting
FT-WBECS-DCHL= 2-1/2” long 1/2” Female to 3/4” Male NPT Fitting
Brass for corrosion resistance.</td></tr>
<tr><td>15</td><td>Pilot Tube</td><td>Stainless steel for heat and corrosion resistance.
Standard Length = 24”
Nominal Tube Size = 1/8” with Flared Connectors</td></tr>
<tr><td>16</td><td>WBECS Box</td><td>Stainless steel for heat and corrosion resistance.</td></tr>
<tr><td>17</td><td>Natural Gas Orifice</td><td>REQUIRED FOR NATURAL GAS APPLICATIONS
FT-WBECS-DCS= 1/2" NPT drilled to 11/64” (0.172”) diameter.
FT-WBECS-DCM= 1/2” NPT drilled to #12 (0.189”) diameter.
FT-WBECS-DCL= 3/4” NPT drilled to letter Q (0.332”) diameter.
FT-WBECS-DCHL= 1/2" NPT drilled to #4 (0.209”) diameter.
• Internal Orifice= 1/8” NPT Hex Plug Drilled to #26 (0.147”) diameter (75,000 BTU at 3.5 in. Water Column, 1 in. pressure drop)
Brass for corrosion resistance.</td></tr>
</table>

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WARRANTY INFORMATION

ARCHPOT warrants the Weather Beater Electronic Control System (WBECS) to be free of manufacturing defects in materials or workmanship when properly installed and operated for residential use for a period of two (2) years from date of installation. If installed in a commercial setting, this warranty period is for one (1) year. Date of installation must be documented, or the date of manufacture. The date of manufacture can be found in the top right corner of the label's table with a two-digit year followed by a two-digit week shall be considered the warranty commencement date.

During the warranty period, ARCHPOT will repair or replace any components, that in its sole discretion are considered defective. This warranty covers parts only and does not cover costs of removal, reinstallation, shipping or inspection of said parts.

Damage to the WBECS caused by installation error, accident, misuse, or abuse is not covered under this warranty. Any modification to the WBECS or any of its components as supplied by the factory will void the warranty. Under no circumstances will ARCHPOT be responsible for incidental or consequential damages. Limitations to incidental and consequential damages vary from state to state so some limitations may not apply to you.

To file a warranty claim, owner must contact ARCHPOT or authorized dealer with:

Name, Address, Telephone Number, Date and Proof of Purchase, Date and Proof of Installation, and Model Name/Part number

Please explain installation particulars and defect noted. Pictures of installation may be required.

ARCHPOT reserves the right to inspect components and may require part(s) to be returned to the factory for inspection.

If in its sole discretion ARCHPOT finds a component or system to be defective, it will repair or replace said components with new or remanufactured parts as it deems appropriate. Transportation charges to and from ARCHPOT are the responsibility of the owner.

For questions or help in diagnosis or installation please call ARCHPOT support at 888-507-7706 or visit the website at www.archpot.com.

WBECS SYSTEM OVERVIEW

The Weather Beater Electronic Control System utilizes CSA certified components to supplement an outdoor product.

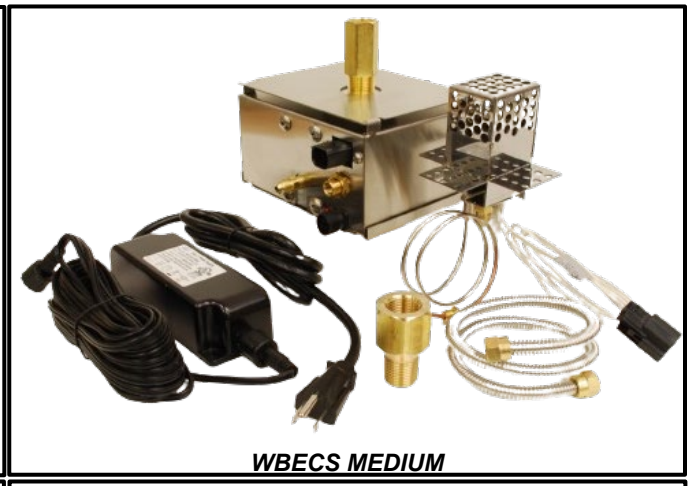
The WBECS unit is an electronic ignition control system certified to the latest standards for outdoor gas products. The system utilizes a 13 VDC power source with a Hot Surface Ignitor (HSI), thermocouple flame sensing, and LED diagnostics to provide a compact, fully functional, user-friendly experience. It is rated for a -20°F to 175°F temperature range with robust connections designed to resist the outdoor elements. The WBECS unit maximum rated BTU capacity at a 1" pressure drop can be found on the unit's label. **ENSURE THE BTU RATING OF THE APPLIANCE DOES NOT EXCEED THE MAXIMUM BTU RATING OF THE WBECS UNIT BEING INSTALLED.**

WBECS KIT CONTENTS

The WBECS kit includes the following items:

- WBECS Control Box
- Pilot Assembly
- Pilot Tube Flex Line
- Power Supply
- Plug and Play Power Wire
- Instruction Packet
  - Quick Reference Guide
  - Instruction Manual
  - Natural Gas Main Orifice

WBECS SMALL



WBECS MEDIUM

WBECS LARGE

WBECS HIGH/LOW

TOOLS/SUPPLIES REQUIRED FOR INSTALLATION

- Pipe Wrench
- Crescent Wrench/Right Size Combination Wrenches
- Manometer/Pressure Tester
- Electrical Voltage Meter
- Wire Strippers (Necessary if Splicing Wires)
- Waterproof Wire Nuts (Necessary if Splicing Wires)
- Wire of Appropriate Gauge (Necessary if Splicing Wires)

INSTALLATION REQUIREMENTS

Only a certified gas installer, service agent, or local gas supplier may install and service this product.

⚠	**WARNING: Inspect all components before installation. If any parts are damaged, contact your supplier. Do not install damaged parts.**
⚠	**WARNING: RISK OF FIRE! Provide adequate clearances. Keep the appliance area clear and free from combustible materials, gasoline, and other flammable vapors and liquids.**
⚠	**WARNING: The Weather Beater Electronic Control System operates on 13 Volts DC power. DO NOT attempt to power using 110 Volts AC Power! DAMAGE WILL RESULT!**
ⓘ	**Consult the appliance manufacturers instructions for all gas installation requirements.**
ⓘ	**Use only joint compound or thread sealant specific to gas use that is resistant to all gases. DO NOT USE TEFLON TAPE, THREAD DAMAGE TO VALVE CAN OCCUR IF TEFLON TAPE IS USED IN PLACE OF JOINT COMPOUNT OR THREAD SEALANT. Apply joint compound or thread sealant to all male pipe fittings only and DO NOT USE ON FLARED FITTINGS. Be sure to tighten every joint securely. DO NOT OVERTIGHTEN. *Note: A listed manual gas shutoff device must be installed prior to the location of the appliance.***

GAS INSTALLATION REQUIREMENTS

GAS TYPE

Prior to making gas connections, ensure appliance is compatible with the available gas type. Reference the appliance label to confirm gas type requirement.

GAS PRESSURE

Proper inlet gas pressures are required for optimum appliance performance, which must fall within the ranges found in the Gas Pressure Requirements table below. *Note: Minimum required pressure may vary dependent on BTU output of the appliance.*

Gas Pressure Requirements		
Inlet Pressure	**Natural Gas**	**Propane Gas**
Minimum	4" W.C.	8" W.C.
Nominal	7" W.C.	11" W.C.
Maximum	10.5" W.C.	14" W.C.
Typical Appliance Pressure Requirements		

GAS LINE SIZING

Gas line sizing requirements need to be made following NFPA 54/ANSI Z223.1. Recommended pipe diameters based on gas type, burner BTU output, and the pipe run length can be found in the table on the subsequent page.

GAS CONNECTION

Gas supply line must be installed in compliance with local building codes, if applicable. Supply must include drip leg and sediment trap. If no applicable building codes are available, follow national fuel gas code NFPA 54/ANSI Z223.1. Installation should be performed by an approved and/or licensed, qualified installer as required by locality.

Standard Orifice Sizes				
	Main Orifice Drill Size		Internal Orifice Dill Size	
Model	**NG**	**LP Air Mixer**	**NG**	**LP**
FT-WBECS-DCS	11/64"	#37		
FT-WBECS-DCM	#12	#31		
FT-WBECS-DCL	Q	#4		
FT-WBECS-DCHL	#4	#26	#26	#37

Note: A listed manual gas shutoff device must be installed upstream from the appliance.

GAS ORIFICE SIZING

Standard orifice sizing can be seen in the table above. If appliance falls outside these values, reference suggested drill size chart below. **DO NOT DRILL ANY ORIFICE WHILE INSTALLED IN THE UNIT, AS THIS CAN INTRODUCE DEBRIS INTO THE VALVE LEADING TO FAILURE AND VOIDING OF WARRANTY.**

BTU & Suggested Orifice Drill Size Guide																	
	ORIFICE DRILL SIZES						ORIFICE DRILL SIZES						ORIFICE DRILL SIZES				
	NATURAL GAS				LP GAS		NATURAL GAS				LP GAS		NATURAL GAS				LP GAS
Burner BTU	**4" W.C.**	**5" W.C.**	**6" W.C.**	**7" W.C.**	**11" W.C.**	**Burner BTU**	**4" W.C.**	**5" W.C.**	**6" W.C.**	**7" W.C.**	**11" W.C.**	**Burner BTU**	**4" W.C.**	**5" W.C.**	**6" W.C.**	**7" W.C.**	**11" W.C.**
40,000	31	33	7/64	37	49	100,000	11	15	17	19	31	175,000	E	B	1	7/32	22
50,000	30	1/8	31	32	45	110,000	7	12	15	17	1/8"	200,000	H	E	C	15/64	18
60,000	26	9/64	30	30	43	120,000	4	9	12	14	30	225,000	9/32	I	F	E	15
70,000	21	25	27	29	39	130,000	7/32	5	9	12	29	250,000	N	9/32	I	G	12
80,000	18	20	23	26	36	140,000	2	3	6	9	9/64"	275,000	O	19/64	9/32	I	8
90,000	14	11/64	20	22	33	150,000	15/64	2	4	6	26	300,000	Q	5/16	19/64	9/32	5
Calclulation Based on Natural-1050 BTU/CF with 0.65 Spec. Grav.																	
LP -2500 BTU/CF with 1.55 Spec. Grav.																	
All calculations made with Orifice Discharge Coefficient of 0.8. Drill size selected nearest to calculated orifice size values.																	

GAS LINE SIZING INFORMATION (NATURAL GAS)

Iron Pipe (Schedule 40)			Pipe Run Length (ft.)									
Nominal Size	OD (in.)	ID (in.)	15	30	45	60	75	90	105	120	135	150
			Calculated BTU Values (x1000)									
3/8"	0.675	0.493	*49.9*	*35.3*	*28.8*	*24.9*	*22.3*	*20.3*	*18.8*	*17.6*	*16.6*	*15.7*
1/2"	0.84	0.622	*98.7*	*69.8*	*56.9*	*49.3*	*44.1*	*40.3*	*37.3*	*34.9*	*32.9*	*31.2*
3/4"	1.05	0.824	*224*	*158.4*	*129.3*	*112*	*100.1*	*91.4*	*84.6*	*79.2*	*74.6*	*70.8*
1"	1.315	1.049	*450.3*	*318.4*	*259.9*	*225.1*	*201.3*	*183.8*	*170.2*	*159.2*	*150.1*	*142.4*

Copper Pipe			Pipe Run Length (ft.)									
Nominal Size	OD (in.)	ID (in.)	15	30	45	60	75	90	105	120	135	150
			Calculated BTU Values (x1000)									
3/8"	0.5	0.125	*22.3*	*15.7*	*12.8*	*11.1*	*9.9*	*9.1*	*8.4*	*7.8*	*7.4*	*7*
1/2"	0.625	0.25	*52*	*36.8*	*30*	*26*	*23.2*	*21.2*	*19.6*	*18.4*	*17.3*	*16.4*
3/4"	0.875	0.375	*170.4*	*120.4*	*98.3*	*85.2*	*76.2*	*69.5*	*64.4*	*60.2*	*56.8*	*53.8*
1"	1.125	0.5	*392.2*	*277.3*	*226.4*	*196.1*	*175.4*	*160.1*	*148.2*	*138.6*	*130.7*	*124*

Values Calculated using Sptizglass Low Pressure Formula with 0.5" WC Pressure Drop, 0.65 Specific Gravity, & 1050 BTU/CF.

GAS LINE SIZING INFORMATION (LIQUID PROPANE)

Iron Pipe (Schedule 40)			Pipe Run Length (ft.)									
Nominal Size	OD (in.)	ID (in.)	15	30	45	60	75	90	105	120	135	150
			Calculated BTU Values (x1000)									
3/8"	0.5	0.269	*77*	*54.4*	*44.4*	*38.5*	*34.4*	*31.4*	*29.1*	*27.2*	*25.6*	*24.3*
1/2"	0.625	0.364	*152.2*	*107.6*	*87.8*	*76.1*	*68*	*62.1*	*57.5*	*53.8*	*50.7*	*48.1*
3/4"	0.875	0.493	*345.3*	*244.2*	*199.4*	*172.6*	*154.4*	*141*	*130.5*	*122.1*	*115.1*	*109.2*
1"	1.125	0.622	*694.3*	*490.9*	*400.8*	*347.1*	*310.5*	*283.4*	*262.4*	*245.4*	*231.4*	*219.5*

Copper Pipe			Pipe Run Length (ft.)									
Nominal Size	OD (in.)	ID (in.)	15	30	45	60	75	90	105	120	135	150
			Calculated BTU Values (x1000)									
3/8"	0.5	0.125	*34.4*	*24.3*	*19.8*	*17.2*	*15.3*	*14*	*13*	*12.1*	*11.4*	*10.8*
1/2"	0.625	0.25	*80.2*	*56.7*	*46.3*	*40.1*	*35.8*	*32.7*	*30.3*	*28.3*	*26.7*	*25.3*
3/4"	0.875	0.375	*262.7*	*185.7*	*151.6*	*131.3*	*117.5*	*107.2*	*99.3*	*92.8*	*87.5*	*83*
1"	1.125	0.5	*604.8*	*427.6*	*349.2*	*302.4*	*270.4*	*246.9*	*228.6*	*213.8*	*201.6*	*191.2*

Values Calculated using Sptizglass Low Pressure Formula with 0.5" WC Pressure Drop, 1.55 Specific Gravity, & 2500 BTU/CF.

ELECTRICAL INSTALLATION REQUIREMENTS

ALL ELECTRICAL SUPPLY CONNECTIONS AND SPLICES SHOULD BE MADE BY A LICENSED ELECTRICIAN OR CERTIFIED PROFESSIONAL ACCORDING TO LOCAL CODES. IMPROPER CONNECTIONS MADE BY UNTRAINED INDIVIDUALS CAN RESULT IN ELECTRICUTION HAZARDS CAUSING SERIOUS HARM OR EVEN DEATH.

110V POWER SUPPLY REQUIREMENTS

The WBECS unit 13VDC power supply requires a 110V ground fault circuit interrupt (GFCI) protected power outlet. Multiple conformations exist for power supply installation upstream from the described outlet including manual power shut off switch, timer shut off switch, Bluetooth enabled shut off switch, etc. Any component placed upstream from the power supply must be capable of supplying the 5 AMP current draw necessary to power the WBECS unit. **If installed components cannot meet this requirement, the WBECS unit will not function properly and will randomly shut down with no error codes.**

POWER SUPPLY REQUIREMENTS

The WBECS is supplied with a 13 Volt DC, all weather, sealed power supply rated to a minimum of 65 Watts. **IF USING AN ALTERNATIVE POWER SUPPLY (NOT RECOMMENDED) CONTACT SUPPLIER TO ENSURE POWER REQUIREMENTS ARE MET.**

WIRE SIZE REQUIREMENTS

WBECS kit contains 30 ft. (15 ft. for High/Low) of 18 AWG wire for connection of the power supply to the WBECS unit, which meets minimum requirements to maintain 13 VDC at a distance of 30 ft. If the distance exceeds 30 ft., please reference the following table for wire gauge requirements.

Wire Gauge (AWG)	Maximum Run Length (ft)
10	200
12	130
14	80
16	50
18	30

ELECTRICAL CONNECTIONS

Use of the supplied wire with keyed terminations is highly recommended. If splices are required for longer run lengths, we suggest cutting no more than 1 ft. from the plug termination. The resulting pigtails can be spliced into the larger size (smaller gauge) wire. It is highly recommended to use dielectric grease or silicon to fill any and all wire nuts used in splicing/installation to ensure moisture/weather resistance. Note, as the connections being made are DC, any splices made are **polarity sensitive**. Failure to maintain polarity will lead to a non-functional WBECS unit.

PHYSICAL INSTALLATON REQUIREMENTS

CLEARANCE REQUIREMENTS

Appliance must be installed in accordance with the appliance manufacturer's instructions, as well as local building and fire codes. Horizontal and vertical clearance from combustible materials is required and outlined in the appliance manufacturer's instructions.

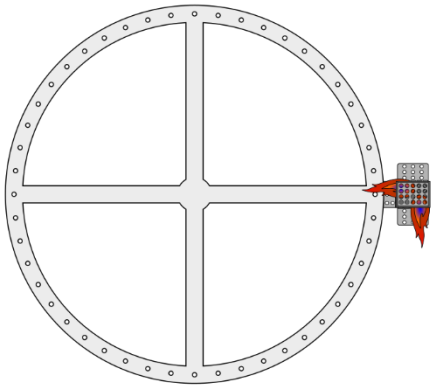
Although the WBECS unit conforms to NEC regulations for installation within 5 feet of water for installation with a water feature, DO NOT INSTALL SUBMERGED WITHIN A WATER FEATURE, as it is not waterproof and could result in electrical shock causing physical harm or even death. If installing near a water feature, ensure the WBECS unit is away from potential, accidental submergence. Furthermore, ensure the burner within the water feature itself is not submerged, allowing water to flow back into the gas line causing damage to the system.

PILOT INSTALLATION REQUIREMENTS

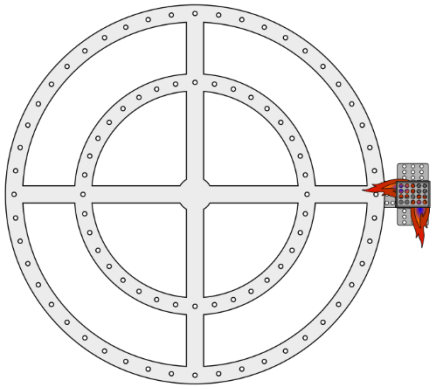
Pilot assembly must be installed properly to ensure appropriate function, as installation in the wrong location, i.e. between two burners where it can get excessively hot, can cause premature failure of the pilot assembly itself due to overheating of the HSI filament or damage to the thermocouple. Moreover, improper installation of the pilot can result in elevated temperatures of the cold junction of the thermocouple leading to erratic shutdowns of the appliance/fire feature.

We recommend mounting the pilot assembly on top of the burner pan and, in that configuration, the pilot line, thermocouple and igniter lead should be lowered through a hole in the pan prior to connecting to the control box. Hole for pilot installation should be outside the burner positioning the pilot assembly at a distance no more than 1" from a burner port to ensure quick gas ignition. Moreover, pilot assembly must be installed at appropriate height to the burner port intended for ignition. Please reference installation diagrams for the appliance/burner type corresponding to the installation being performed. Note: Appliance burner pan may contain a pilot installation location within the pan designed for ease of installation that DOES NOT correspond to an appropriate installation location. In the event this is the case, a new installation hole must be cut in the pan to install the pilot appropriately.

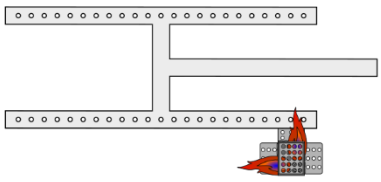
Single Ring Burner Pilot Installation Location



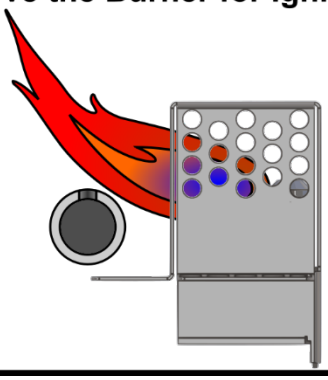
Dual Ring Burner Pilot Installation Location



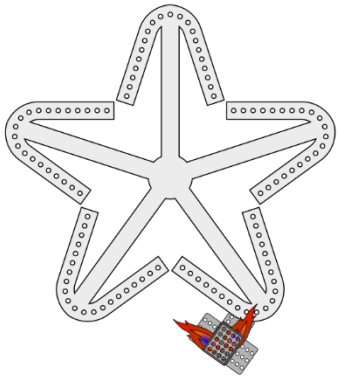
H Burner Pilot Installation Location



Pilot Installation Should Provide Flame Above the Burner for Ignition



Star Burner Pilot Installation Location

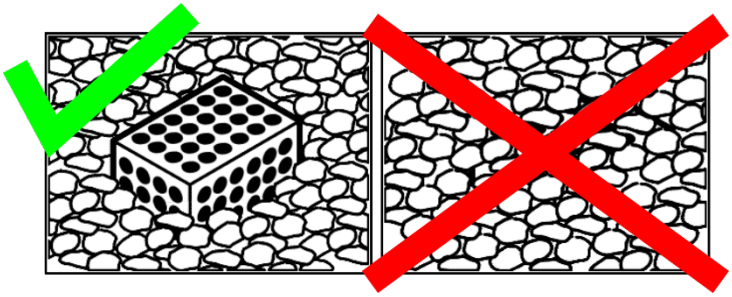


MEDIA REQUIREMENTS

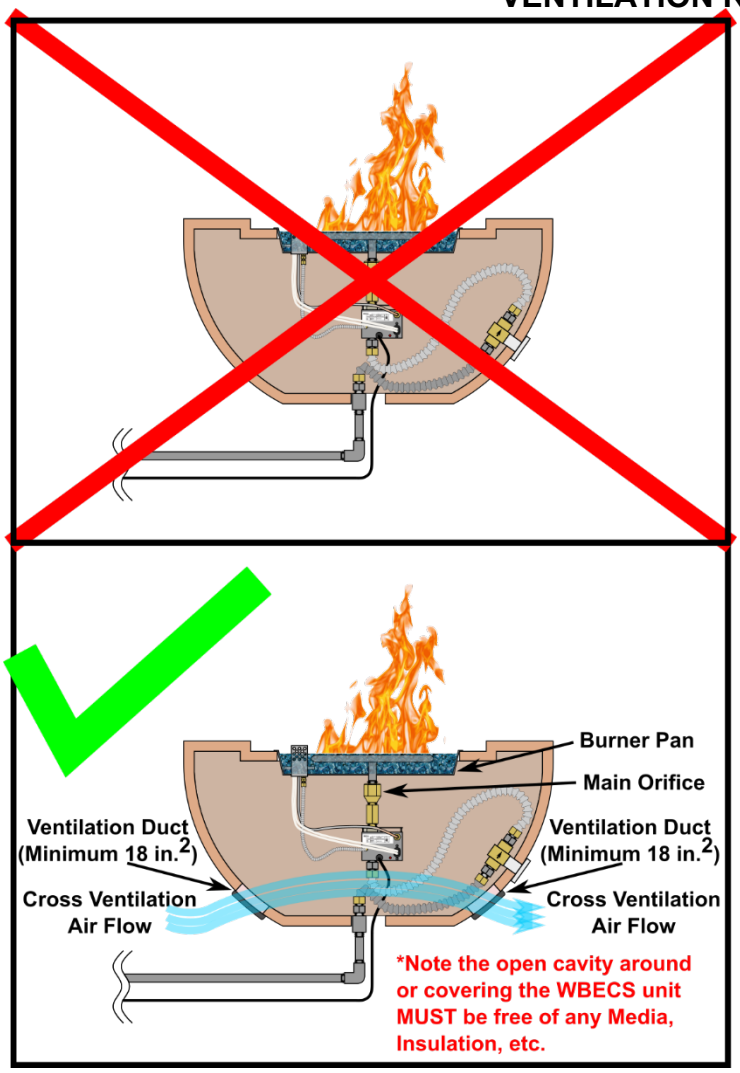
Do not use any other material as media in the fire feature other than those listed below.

- Lava rock no smaller than 1/2" average diameter.
- Fire glass specifically designed and approved for fire features.
- Stones of man-made materials (refractory) designed for firepits.

Media used in the fire feature enhances the look of the flame and improves the fire pit performance. As gas is emitted from the burner the media helps mix air with fuel resulting in a more uniform flame and a cleaner burn. The media will also help spread the flame across all areas of the burner resulting in a faster and more even ignition. The media covering the burner should never exceed 2" in depth. If using fire glass, we recommend use of 1/2" diameter minimum to prevent media from falling into gas orifices and blocking flow of gas out of the jets. Moreover, only cover the burner 1/2" to 3/4" depth. With all media, the upper portion of the pilot burner must be left open to the air for proper ignition. When the media is placed correctly you should see the top of the pilot burner shield, as shown in the diagram. Assuming proper pilot installation, if ignition is delayed or inconsistent you may need to remove some media from the pilot burner area. When using propane gas, it is important to check for back pressure created by excessive use of media that could result in gas being forced back through the air mixer leading to buildup of gas within the appliance feature. Adjust the LP main orifice nut accordingly.



VENTILATION REQUIREMENTS



Venting is required to dissipate heat and any residual fuel. Failure to provide proper ventilation could result in overheating.

Proper cross ventilation is required to prevent the buildup of combustible gases within the appliance enclosure, as well as to provide cool, fresh air for a better overall gas burn. To achieve adequate and appropriate cross ventilation, a **minimum of 36 square inches** of total ventilated area must exist. **To achieve this appropriately, two opposing sides of the enclosure must possess 18 square inches of ventilated area**, as shown in the diagram. Note, the grates must be positioned on opposing sides to achieve best ventilation. Ventilation on a single side can create vacuum within the enclosure when wind blows across the ventilated area.

The ventilation grates should also be aptly positioned dependent on the type of gas you are using. Natural gas is lighter than air and will escape through the upper portion of the enclosure including holes in the burner pan, whereas propane is heavier than air and will sink to the lower portion of the enclosure. Ventilation position is more critical in propane installations, as this gas is more likely to get trapped and buildup inside the enclosure. In the event of using propane, position the ventilation grates towards the bottom of the enclosure to prevent excessive buildup. If unsure of gas type to be used, a bottom position is recommended, as natural gas can escape through holes in the burner pan preventing excess buildup. Note: Do not assume your gas can escape from the enclosure. Provide adequate ventilation and perform proper leak testing to ensure gas buildup is not an issue.

NOTE: ARCHPOT Mounting Bracket is REQUIRED for the following Fire Features to Validate Warranty:

• Geo Round: Sizes 24", 31", 36", 48", 60" (Except 31" Fire Bowl) • Geo Square: Sizes 24", 30", 36" (Except 30" Fire Bowl)

• Legacy Round: Sizes 24", 30", 36", 42", 48" • Legacy Square: Sizes 30", 36"

See Page 22 for Details

DETAILED INSTALLATION INSTRUCTIONS

ELECTRICAL CONNECTIONS

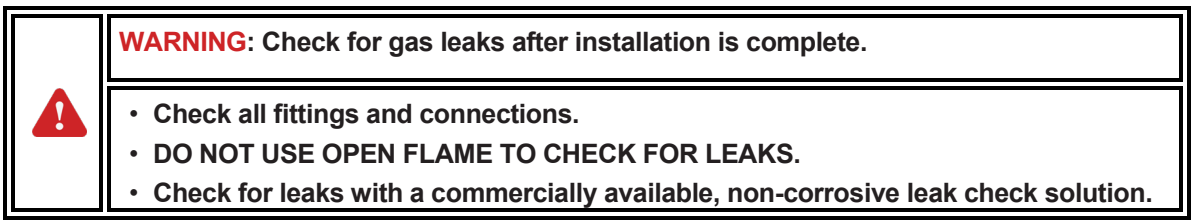
ALL ELECTRICAL SUPPLY CONNECTIONS AND SPLICES SHOULD BE MADE BY A LICENSED ELECTRICIAN OR CERTIFIED PROFESSIONAL ACCORDING TO LOCAL CODES. IMPROPER CONNECTIONS MADE BY UNTRAINED INDIVIDUALS CAN RESULT IN ELECTRICUTION HAZARDS CAUSING SERIOUS HARM OR EVEN DEATH.

1. Verify that an appropriate ground fault circuit interrupt (GFCI) protected 110V supply exists upstream from the WBECS unit in a protected location. **IF AN APPROPRIATE POWER SUPPLY DOES NOT EXIST, DO NOT PROCEED WITH INSTALLATION- CALL A LICENSED ELECTRICIAN FOR ASSISTANCE.**
2. After verifying appropriate power supply, check that all components upstream from the supply (Timer Switches, Manual Switches, etc.) will appropriately function with 5 AMP current draw of the WBECS unit(s). If installing multiple units, reference Page 8 of this manual for requirements and general install diagram.
3. The WBECS unit is supplied with a 110V step down power supply that supplies the appropriate 13VDC, 5AMP power to the WBECS unit. This will be plugged into an outlet connected to the 110V supply described above. Double check that the supply is in a location conforming to local and federal NEC codes. **IF THE LOCATION DOES NOT CONFORM TO CODES, CONTACT A LICENSED ELECTRICIAN FOR ASSISTANCE PRIOR TO INSTALLATION.**
4. After ensuring the upstream electrical supply conforms to codes and components are capable of supplying power to the WBECS unit, the electrical supply lines should be run from the power supply location to the WBECS unit. Ensure the gauge of wire being spliced conforms to the length table found on Page 8 of this manual under the WIRE SIZE REQUIREMENTS section. **Note: make sure that all supply runs are done at this time. If using a WBECS-HS unit, runs should be made from the power supply location to the necessary Bluetooth controller location. A second line or set of lines will be run from the Bluetooth controller to the WBECS unit location. Failure to run both sets at this time will result in a non-functional unit and/or potential damage if hooked up improperly. Please refer to the WBECS-HS addendum for connection instructions and diagram to ensure appropriate runs/connections are made prior to making gas connections below. TAG/LABEL CONNECTIONS TO ENSURE PROPER CONNECTION WHEN HOOKING UP THE WBECS UNIT.**
5. Once the electrical supply lines have been run from the power supply location to the WBECS unit, the keyed Plug and Play connections can be made to both the WBECS unit and the power supply. If installing a WBECS-HS unit, refer to addendum for proper connection instructions. **DO NOT PLUG THE POWER SUPPLY INTO THE 110V OUTLET UNTIL ALL GAS CONNECTIONS HAVE BEEN MADE IN THE NEXT SECTION, AS THE UNIT WILL POWER ITSELF ON AND TRY AN IGNITION CYCLE, WHICH SHOULD ONLY OCCUR WHEN THE UNIT IS READY TO TEST.**

GAS CONNECTIONS

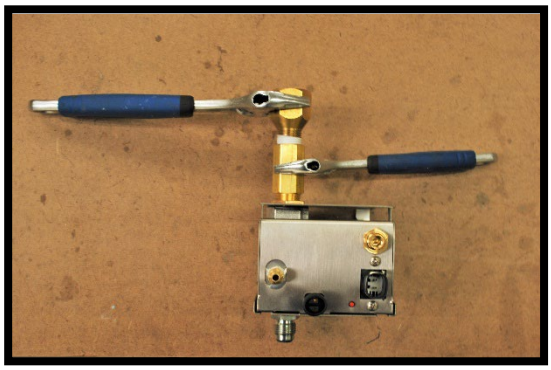
ALL GAS CONNECTIONS SHOULD BE MADE BY A LICENSED PLUMBER OR CERTIFIED GAS PROFESSIONAL ACCORDING TO LOCAL CODES. IMPROPER CONNECTIONS MADE BY UNTRAINED INDIVIDUALS CAN RESULT IN GAS LEAKS THAT CAN RESULT IN EXPLOSION CAUSING SERIOUS HARM OR EVEN DEATH.

Use only joint compound or thread sealant specific to gas use that is resistant to all gases. **DO NOT USE TEFLON TAPE, THREAD DAMAGE TO VALVE CAN OCCUR IF TEFLON TAPE IS USED IN PLACE OF JOINT COMPOUNT OR THREAD SEALANT**. Apply joint compound or thread sealant to all male pipe fittings only and **DO NOT USE ON FLARED FITTINGS.** Be sure to tighten every joint securely, but **DO NOT OVERTIGHTEN**. *Note: A listed manual gas shutoff device must be installed prior to the location of the appliance.*

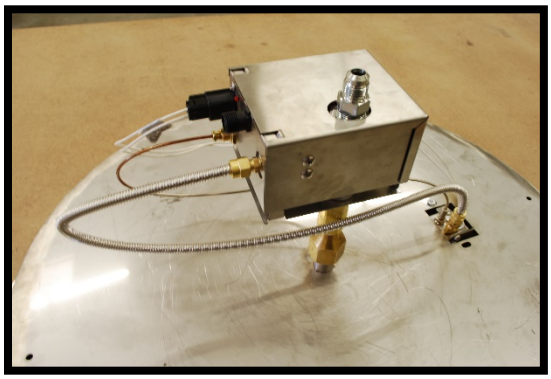


1. Verify gas supply is shut off at the accessible, upstream manual shutoff valve prior to any installation. **DO NOT proceed with installation if an accessible manual shutoff does not exist – call a licensed plumber for assistance. IF YOU SMELL GAS, DO NOT PROCEED WITH INSTALLATION UNTIL SOURCE CAN BE IDENTIFIED AND RISK CAN BE SAFELY MITIGATED. Note: A sediment trap is recommended in the gas piping to prevent moisture and debris in the gas line from damaging the valve.**
2. Validate the appliance/burner BTU rating **DOES NOT EXCEED** the rating of the WBECS unit (WBECS-SS: 125,000 BTU; WBECS-MS: 350,000 BTU; WBECS-LS: 550,000 BTU; WBECS-HS: 197,000 BTU).
3. Confirm that the gas supply line is appropriate diameter for the distance being run from the supply to the WBECS unit to produce the BTU output confirmed above. Use the Table on page 7 of this manual to match the supply line internal diameter to the length being run to find the maximum BTU output to substantiate proper diameter.

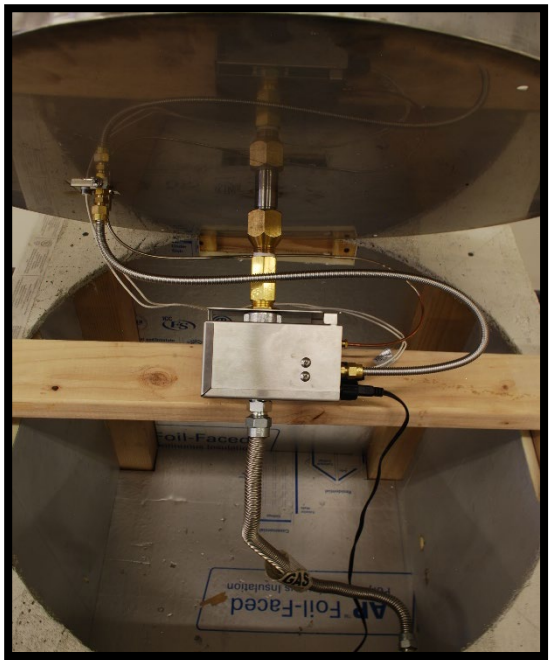
4. Corroborate the gas type, Natural Gas or Liquid Propane, matches the type identified in the appliance's manual.
5. If using Natural Gas, remove the Natural Gas Orifice (Stamped #12 NG Orifice) from the packaging and apply joint compound or thread sealant on the male side of the adapter.
6. If using Liquid Propane, you will need to procure the FT-LPK Liquid Propane Kit for installation. This kit contains 1/2" male NPT air mixer for installation as well as a #21 pilot orifice. Upon procurement, apply joint compound or thread sealant to the male sides of the air mixer for installation.
7. Install the Natural Gas Orifice or air mixer on the outlet (OUT) side of the WBECS unit ensuring that the gas flow arrow points away from the box. Tighten the fittings securely (1-2.5 full turns past finger tight) using two appropriate wrenches for install, one on the outlet fitting of the WBECS unit and one on the adapter being installed. (See Fig. 1)
8. If possible, we suggest installing the WBECS unit on the burner next, which should have 1/2" male NPT thread on the burner inlet. Apply joint compound or thread sealant to the 1/2" burner inlet prior to install. If the burner being used has any other thread/connection type, an adapter must be acquired and installed on the burner. The burner inlet now inserts through the burner pan, protruding through for installing the WBECS unit onto the burner inlet threads. Thread the WBECS fitting onto the burner inlet to finger tight. Tighten the fittings securely (1-2.5 turns past finger tight) using an appropriate wrench on the outlet adapter and a pipe wrench on the inlet of the burner being installed. **DO NOT APPLY PRESSURE OR TORQUE TO THE CONTROL BOX ITSELF, IT CAN CAUSE BROKEN FITTINGS.** (See Figs. 2 & 3)
9. The pilot assembly should be installed into the burner pan next ensuring that the pilot is positioned outside the burner in a location where it can safely ignite the main burner. Refer to page 9 of this manual for proper pilot installation position diagrams. If such a location does not exist from the factory, an appropriate hole should be cut in the pan to properly position the pilot assembly. Original pilot hole location should be covered to ensure media does not drain from the pan into the enclosure below. **DO NOT COVER THE WEEP HOLES IN THE PAN THAT ALLOW WATER DRAINAGE.**
10. Prior to mounting the pilot assembly, if using Liquid Propane (LP), the pilot orifice needs to be changed. This comes as part of the Liquid Propane Kit discussed above. Contact ARCHPOT to procure this kit. Part number information can be found on the accessories page at the end of this manual. To change the pilot orifice, loosen and remove the pilot adapter nut mounted to the orifice using a 1/2" wrench, 1/2" socket wrench, or an adjustable crescent wrench. Next, using a Phillips head screwdriver, loosen and remove the 10-32 screw securing the orifice from turning. The orifice can then be removed using a 1/2" wrench, 1/2" socket wrench, or adjustable crescent wrench. Install the LP orifice and reassemble in reverse order from above.
11. Next, mount the pilot assembly in the pan with appropriate hardware to hold it securely in its location.
12. After mounting the pilot in its location, connect the two ends of the 24"-1/8" flare pilot gas tube supplied with the WBECS unit to the pilot outlet port on the WBECS unit on one end and the pilot assembly on the other. Securely tighten to ensure no gas leaks from tube. (See Fig. 2) **DO NOT ADD JOINT COMPOUND, THREAD SEALANT, OR TEFLON TAPE TO THE CONNECTIONS BEING MADE.**
13. Next, connect the hot surface igniter (HSI) plug into the box making sure it securely clicks into the mating connector. Thread the thermocouple connector into the mating plug on the box and finger tighten plus 1/4 turn. Make sure not to bend the thermocouple too sharply or force it into tight positions that could bend and break it leading to a non-functional WBECS unit. (See Fig. 2)



Install Figure 1: Install natural gas orifice with thread sealant finger tight. Using two wrenches, tighten the orifice 1-2.5 turns past finger tight.



Install Figure 2: Install the supplied pilot tube onto the WBECS box on one end and the pilot on the other. Use a wrench to tighten until snug. Connect the thermocouple lead into the receptacle on the control box finger tight, then tighten 1/4 turn. Push the hot surface igniter (HSI) connection into place firmly until it clicks. DO NOT USE THREAD COMPOUND, PIPE DOPE, OR TEFLON TAPE ON BRASS FLARE FITTINGS OF THE PILOT OR WBECS UNIT.



Install Figure 3: Connect the supply gas line to the 1/2" flared connector on the bottom of the box. Tighten with a wrench until snug. After securing the gas line, perform a leak test. If no leaks are found, connect the electrical supply plug and play connector to the available connection on the WBECS box.

14. Now that the pan is assembled and ready to be installed into the fire feature, it is a good time to confirm that the appliance possesses the appropriate cross-ventilation ports to provide the air flow necessary for the appliance and WBECS to function properly. Reference page 10 of this manual for ventilation requirements.
15. After confirmation of proper ventilation, check that the gas supply line is free of water and debris that could damage the gas valves if allowed to pass through the valves. Purge the gas lines of air and perform all leak tests with leak detector or leak reactant on main gas supply and repair leaks as necessary. Turn off gas supply.
16. Once the gas supply line is free of water and debris, purged, and leak tested, the supply should be connected to the WBECS unit inlet (IN) port and the gas supply line using a corrosive resistant 1/2" Flared Fitting Corrugated whistle free Gas Appliance Line. If the gas supply line does not have a 1/2" flared fitting on the end, an adapter must be procured and installed prior to installing the gas appliance line. Ensure all fittings are securely tightened. (See Fig. 3) **DO NOT TRY CONNECTING ANY OTHER FITTING TYPE TO THE FLARED FITTING. DO NOT ADD JOINT COMPOUND, THREAD SEALANT, OR TEFLON TAPE TO THE FLARED CONNECTIONS BEING MADE.**
17. Upon completion of gas supply line hookup, the unit is nearly ready to test. Verify gas inlet pressure is within the specified minimum and maximum pressures. Consult Gas Inlet Pressures on page 6.
18. Turn on gas supply to perform leak tests on main gas supply and all connections to appliance and repair as needed.
19. **DO NOT TEST/USE APPLIANCE IF THERE IS EVIDENCE OF LEAKING GAS.** If leak is suspected, turn off main gas supply immediately. Check and tighten all connections where leaks are evident. Perform leak test again, if still leaking, pinpoint leak location. If leak appears to be coming from the WBECS box, contact ARCHPOT immediately for Warranty consideration. If the leak appears to be coming from connections, inspect all connections with main gas off. Ensure connection types are the same type of mating connections. Disconnect as necessary to check mating surfaces. If connections are correct mating type and non-flared connections, replace/add joint compound or thread sealant to the connections and test again. If leaks continue to occur, fittings may need to be replaced. Please contact ARCHPOT if this appears to be the case.
20. If no gas leaks are present, the unit is fully ready to be tested, proceed to the next section.
21. **If working with a WBECS-HS unit where connections were not made prior to gas line hookup, refer to the addendum for further installation instructions of Bluetooth control for high/low functionality prior to proceeding to the next section.**

ELECTRONIC IGNITION CONTROL TESTING

1. Plug the power supply into the 110V power supply outlet, and ensure any upstream switches are on and providing power to the power supply.
2. The WBECS unit will run through its ignition cycle (Outlined on Page 14 of this manual), initially turning on the hot surface igniter (HSI). The igniter should glow orange. If this is not the case, ensure the HSI connector is securely plugged into the box. If the igniter is securely plugged in and does not glow orange, check that the indicator LED on the box is lighting up indicating power to the unit. If the LED is not lit or blinking, unplug the plug and play electrical connection and check that there is 13VDC being supplied to the box. If voltage is being supplied and control is not functional, verify polarity is correct. Contact ARCHPOT immediately for Warranty consideration if polarity is correct and control is non-functional. If no voltage is supplied, remove the plug and play connector at the power supply and check for voltage out of the power supply. If voltage is present out of the power supply, there is a problem in your run wire. Consult an electrician to fix/repair the run line. If voltage is not present out of the power supply, check that there is 110VAC coming out of the supply outlet. If the supply outlet has appropriate voltage, the power supply may be damaged/faulty. Contact ARCHPOT for warranty consideration. If the supply outlet has no voltage, check that all upstream switches, if any, are on and supplying power. If upstream components are on and supplying power, contact an electrician to troubleshoot supply line issues.
3. Once the HSI is functional and glows orange, the pilot valve should open shortly after allowing gas flow to the pilot assembly across the igniter. The gas may not light on the initial trial for ignition due to air in the lines. Allow 2-3 cycles of the HSI to check for ignition. If ignition does not occur within 2-3 cycles and you can hear gas flowing from the pilot, you may have to purge the line to remove any air from the line not purged previously. This is more likely to occur in longer gas run lengths from the supply. If ignition does not occur, you can smell gas, and the igniter is glowing properly, the HSI may be damaged/faulty, or the supply wire gauge may be too small. Check wire gauge table on page 8 to confirm proper gauge. If wire gauge is correct, please contact ARCHPOT for Warranty Replacement consideration of the HSI.
4. Assuming no issues occur, and the pilot ignites, the thermocouple will sense flame and open the main valve. If the pilot lights and cycles on/off several times without the main valve opening, check that the thermocouple connection on the box is good and tight and no breaks exist in the thermocouple lead. Assuming the thermocouple is good with no breaks, and the main valve still does not open, a two-flash lockout error code should occur indicating lack of flame sense. In this case, the control may be faulty. Contact ARCHPOT for Warranty consideration.
5. If the main valve opens, and the main burner lights appropriately, leak check all connections. If any leaks exist, shut off power to the unit and check that appropriate connections have been made. Tighten fittings if appropriate connections

have been made and retest the WBECS unit. If leaks still occur, pinpoint the source and replace fittings, as necessary. If leaks appear to be from within the WBECS unit, contact ARCHPOT for Warranty consideration.

6. If no leaks are found, turn off the appliance and allow it to cool. Ignition test is complete. Assuming no issues arise, review instruction manual with end user and instruct end user not to change/modify fire pit or media in any way.

WBECS OPERATION

⚠	**WARNING: Do NOT use this appliance if any part has been under water.**
	Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.
⚠	**WARNING: HOT SURFACES – DO NOT TOUCH - SEVERE BURNS MAY RESULT**
	• **Supervise children in same area as the appliance.** • **Alert children and adults to dangers of high temperatures.** • **Flammable materials should not be hung from the appliance or placed on or near the appliance.**
⚠	**WARNING: The appliance must be inspected before use and at least annually by a qualified service technician.**
	• **Any guard or protective device removed for servicing must be replaced prior to operation.** • **Keep the appliance area clear and free from combustible materials, gasoline and other flammable vapors and liquids.**
⚠	**WARNING: If fire feature fails to turn off completely (small flames still visible) turn off gas supply using the manual gas shutoff.**

GENERAL OPERATION

The WBECS unit is designed for simplistic operation by the end-user. Simply, the end-user supplies power to the WBECS unit. When the unit powers on, the control runs through its ignition cycle by initially turning on the Hot Surface Igniter (HSI). The pilot valve is then opened allowing gas to flow across the glowing orange igniter thereby producing a pilot flame. The pilot flame is directed toward both the thermocouple and the main burner for flame sense and main burner ignition, respectively. The thermocouple senses the pilot flame, turns off the HSI and opens the main valve allowing gas to flow out the primary burner of the appliance. The pilot flame then ignites the main burner of the appliance as the final sequence of the automated operation. Both the main valve and pilot valve remain open until power is removed from the control or a loss of flame is sensed by a cooling of the thermocouple.

BULLETED GENERAL OPERATION

- Plug the power supply into the 110V power supply outlet and the supplied control, and ensure any upstream switches are on and providing power to the power supply.
- Power is applied by end-user.
- Hot Surface Igniter (HSI) becomes hot, glowing orange and 4 seconds later the pilot gas valve opens.
- Assuming no air in the lines, a pilot flame should be visible (at night only) within 10 seconds of power application.
- Within 10 seconds of pilot flame ignition, burner (fire ring/ burner bar) should ignite.

FIRE FEATURE START UP

On initial startup, a small amount of air can exist in the gas supply lines. When first lighting appliance it will take a short time for air to purge from lines. Subsequent lighting of the appliance should not require such purging.

Pilot must be kept clear of all media.

1. Before turning appliance on visually inspect fire feature to ensure combustible materials have not collected inside the feature which could burn once turned on. Be sure anyone standing near the fire feature is aware you will be turning the fire feature on before actually turning it on.
2. Turn fire feature on by turning on the electrical device used to power the fire feature.

FIRE FEATURE SHUTDOWN

The fire feature will remain hot for a long period after operation. Use caution after turning the appliance off.

1. Turn fire feature off by turning off the electrical device used to power the fire feature.

DESCRIPTION OF IGNITION & TIMINGS

Exact timings described herein can be found in the table at right. When powered, indicating a call for heat, the unit will wait for Pre-Purge time. The HSI will be energized for warm up time, then the pilot gas valve will energize for Trial-for-Ignition time. The HSI will turn off after Ignition Time. If the flame is detected on the thermocouple before the end of the trial for ignition time, the HSI will turn off. The main valve will turn on and the pilot valve will remain open until power is removed or flame signal is lost. If flame is lost, the control will turn off the gas valves, and after the flame loss recycle delay, restart the ignition sequence. If a flame is not detected during the Trial-for-Ignition time and Trials-for-Ignition remain, the pilot and HSI will turn off and wait for Inter Trial Delay time before starting the next ignition attempt. If a flame is detected prior to turning on the gas valve, the control will stop sequence and remain in safety shutdown until the flame signal is below minimum threshold or drops continuously by minimum threshold value before continuing.

WBECS IGNITION CONTROL TIMING	
Pre-Purge Time	3.25 seconds
HSI Warm Up Time	5 seconds
Trial for Ignition Time	20 seconds
Flame Failure Response Time	16 seconds
Max Inter-Trial Time	5 seconds
Flame Loss Recycles	15 cycles
Flame Loss Recycle Delay Time	None

MAINTENANCE

WARNING: Maintenance should only be performed by a qualified service technician.

WARNING: The appliance must be inspected before use and at least annually by a qualified service technician.

WARNING: Ensure gas and power are shut off and appliance is cool before servicing.

WARNING: Any guard or protective device removed for servicing must be replaced prior to operation

PRIOR TO EACH USE

Inspect for debris in fire feature – remove debris prior to use.

SEMI-ANNUALLY

1. Visually inspect pilot burner for debris/insect infestation (spider webs).
2. Visually inspect burner holes to ensure they are clear.
3. Clean either of the above as necessary using compressed air.

ANNUALLY

1. Visually inspect pilot burner for excess corrosion due to heat and moisture.
2. Turn fire feature on to ensure proper operation.

TROUBLESHOOTING

The WEBCS is installed but when turned on nothing happens:

The most common cause is an electrical wiring or power issue. Inspect all electrical connections carefully to confirm all wires from the power supply to the fire feature are connected properly. If wiring is properly connected, disconnect the wires at the fire feature and use a multimeter to confirm a minimum of 13 volts DC when the fire feature is turned on. If there is not a minimum of 13 volts DC at the fire feature, conduct the same test at the power supply to determine if the power supply is truly producing a minimum of 13 volts DC. If you do have a minimum of 13 volts DC at the fire feature, contact us for further assistance.

The WBECS is turned it on, the igniter glows orange and gas can be heard flowing, but does not ignite:

The two most common causes to this fault are **Air in the Fuel Line** or low **Electrical Current** to the fire feature.

Air in the Gas Line:

New gas line installations often have air trapped inside that must be removed or purged prior to installing the WBECS. If the line has not been properly purged, it may take several cycles of turning the fire feature on and off before the all the air is purged from the gas line.

Understanding how the WBECS operates will help you go through the purging process. When you turn on the WBECS, the igniter will begin to glow, followed by the pilot gas valve opening 4 seconds later. During next 3 minutes the igniter will cycle on and off every 30 seconds in conjunction with the pilot gas valve. Accordingly, if you are attempting to purge air from the gas line, engage the system and leave it on for approximately 3 minutes. Next turn it off and then back on. Let the system run for an additional 3 minutes. When purging air from a new gas line, you may need to cycle the power several times as described above before gas begins to flow. If at any point you smell gas and still don't have ignition, you should attempt to light the pilot flame with a handheld lighter. If ignition occurs when you light it by hand, go to **Electrical Current** section on Page 16.

Electrical Current:

If purging the gas line does not solve the problem, the ignition failure is most likely that the igniter is not getting hot enough to light the gas. The main reason an igniter will not reach full temperature is low amperage. Electricians will commonly check the electrical power, note there are a minimum of 12 volts and think everything is fine electrically, so there must be a problem with the WBECS. The deficiency is not in the volts but rather the amps. Amperage reaching the fire feature is dependent on the gauge wire used between the power supply and the fire feature. Our installation instructions require no less than 18 gauge wire up to 30 feet and 10 gauge up to 200 feet. (See Page 8) Smaller wire size will often be the problem in ignition.

Steps to check for sufficient amperage:

- **CAUTION: Turn off the gas supply before proceeding.**
- Utilizing clamp on ammeter, clamp the ammeter around one of the wires providing power to the WBECS.
- Turn on the fire feature.
- Amperage should range between 1.4 to 1.6 amps initially. Four seconds after being turned on the amperage will jump to approximately 2.0 amps.

If the amperage listed previously is not present AND the wire gauge used was less than listed above, change the wiring. Otherwise contact us for further assistance.

The fire feature was turned off, but small flames can still be seen flickering from the fire feature.

Turn the fire feature back on, let the main burner light and then turn it off again. You may need to do this several times. Small pieces of debris in the gas line may get caught in the main or pilot valve preventing it from completely closing. This is common in a new gas line. By cycling power you can often dislodge the debris. If cycling power does not rectify the problem, turn the gas off using the manual gas shutoff and contact us for further assistance.

LED Diagnostic Codes

OFF	No Power / Internal fault
ON	Normal Operation
1 Flash	Hot Start, thermocouple hot at power up.
2 Flash	Trial Lockout, maximum Ignition trials exceeded without flame detection.
3 Flash	Flame Loss Lockout, exceeded maximum losses of flame after proving burner
4 Flash	Flame Sense Fault
5 Flash	Valve Fault
Fast Flash	Safety Shutdown

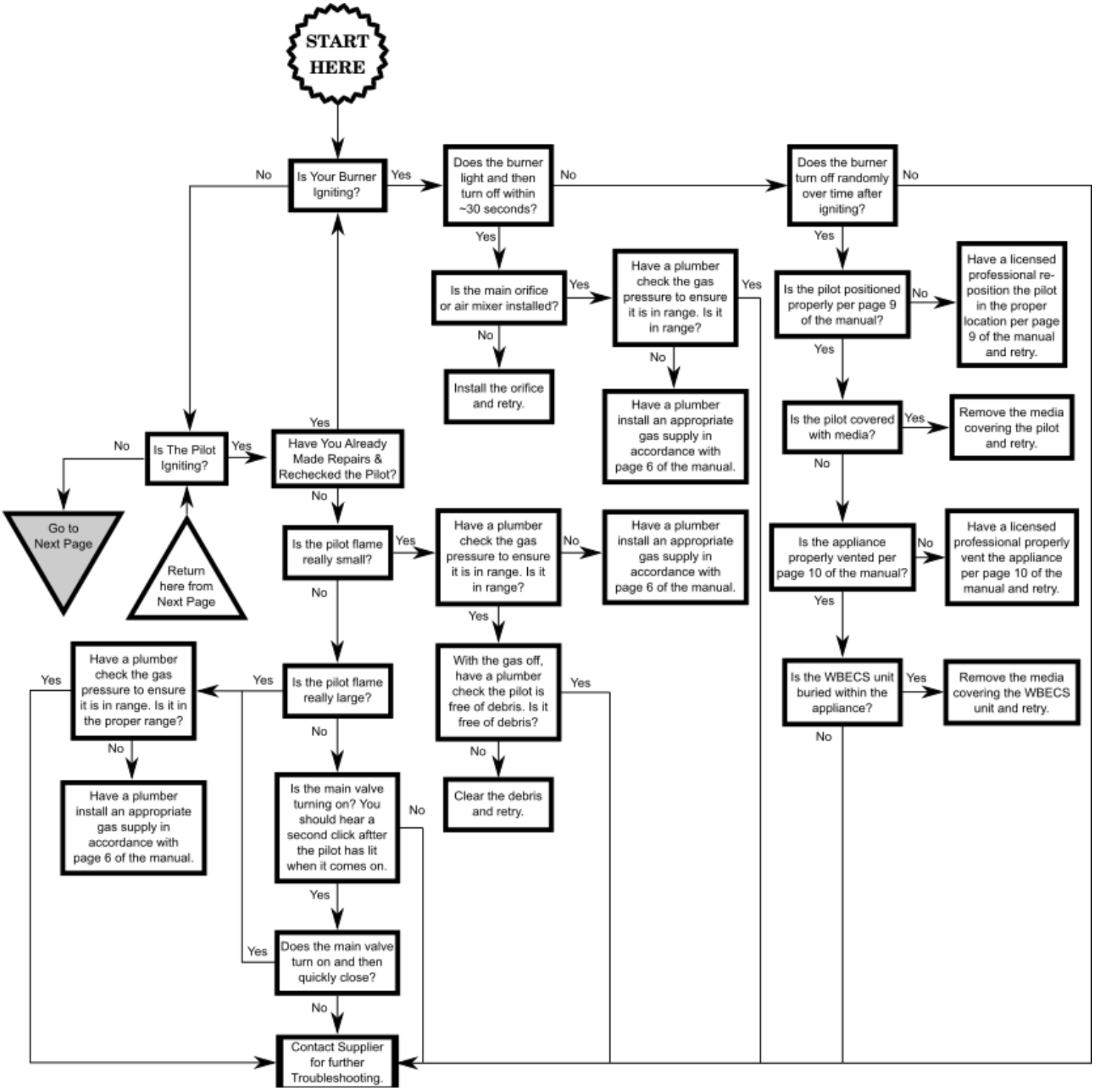
TROUBLESHOOTING TABLE

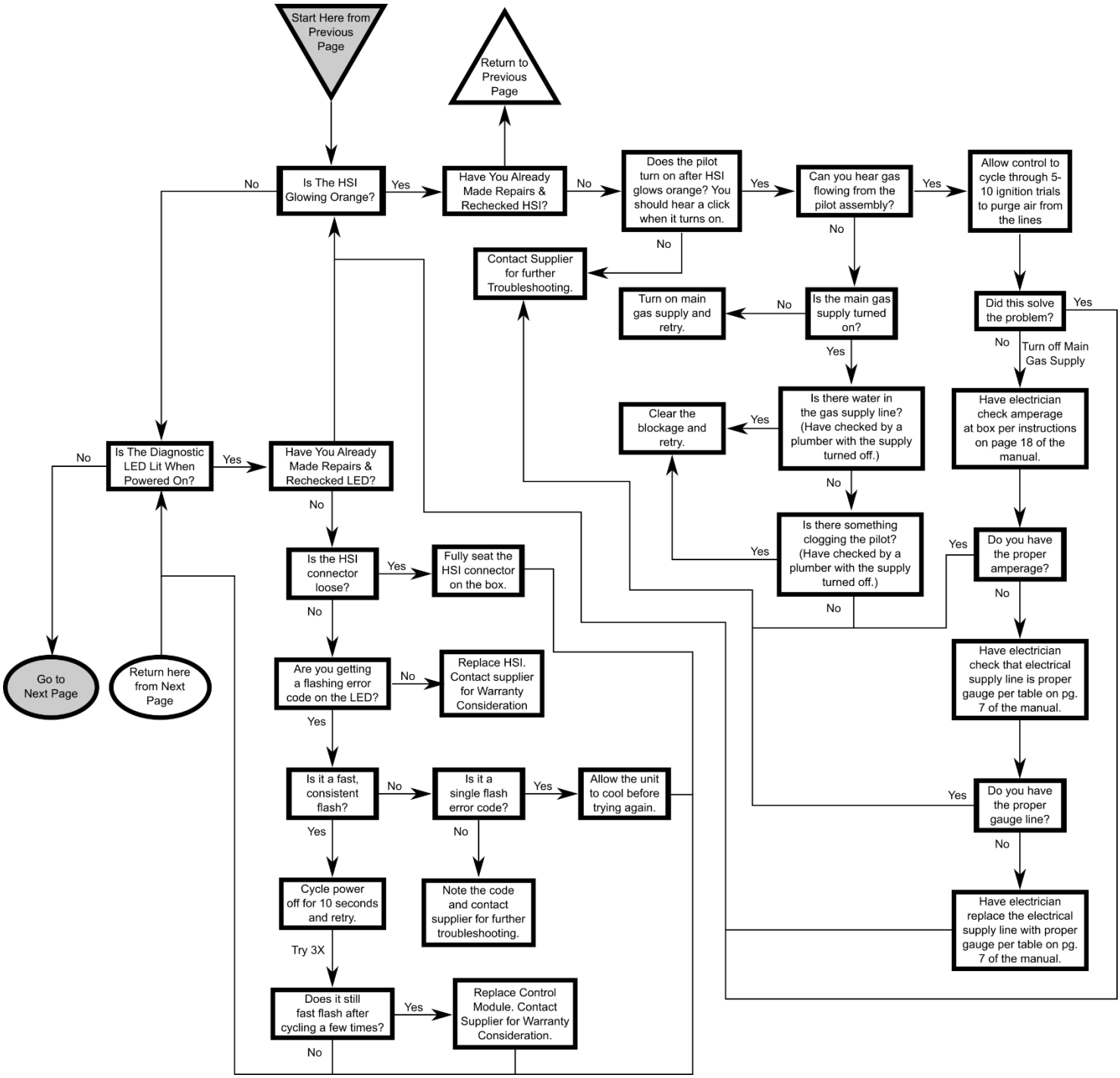
Sequence of	Fault	Check	Result	Action(s)
Power ON	No Function/No LED	Check for 13V DC at power supply	No or low voltage	Make sure power supply is powered. If so, replace power supply.
		Check for 13V DC at con- trol box	No or low voltage	Check wiring for continuity, replace if broken.
				Ensure wire is 30 feet long and 18AWG supplied wire. If splicing reference page 8 of manual for proper gauge selection.
		Check fuse on HTC01 control module	Fuse OK	Replace control module
			Fuse blown	Check wiring and replace fuse. If fuse blows again, there is a short in the wiring, igniter, gas valve or control module. Locate shorted component and replace.
Igniter warm-up	LED on, no igniter	Check for breaks in igniter	Broken	Replace igniter.
		Check igniter wiring and connector	Damaged or broken	Repair.

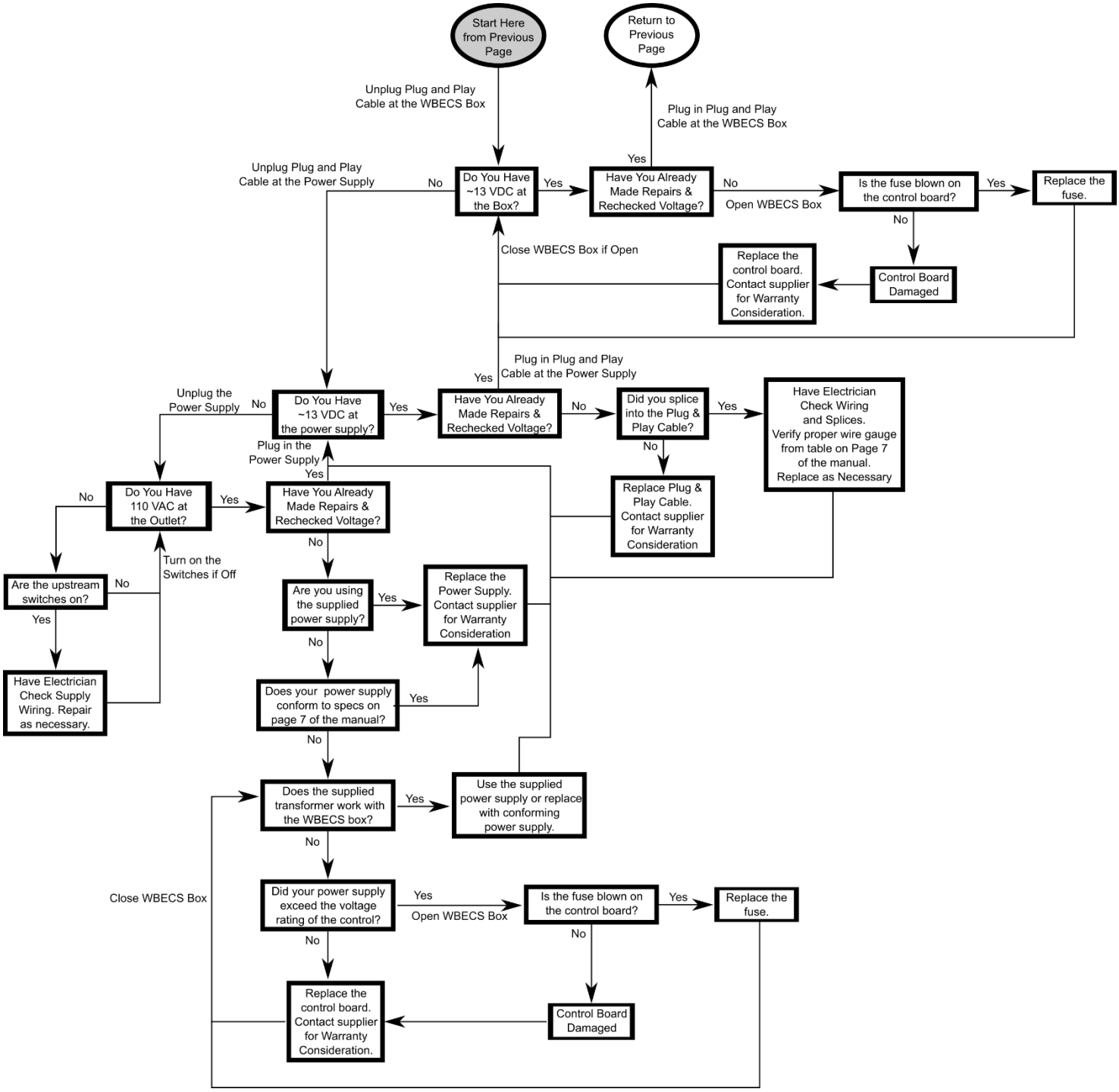
Trial for ignition	Igniter ON, does not light. Control goes through all ignition attempts then enters 2 LED flash lockout	Is pilot valve opening?	No. Pilot gas flow	Check input gas pressure. Maximum pressure 1/2 PSI. Install regulator if higher.
				Check voltage to pilot valve. Voltage should read >10.2VDC. Check "No or Low Voltage" above if less.
				Check pilot coil for open circuit. Replace
			Yes. Gas flow at pilot. No ignition/low flame	Ensure air has been bled from gas line
				Consult burner manufacturer for minimum gas pressure.
				If natural gas, ensure pilot jet is not for LP
				Check pilot injector for clogged jet. Clean
				If pilot can be lit with a match, check igniter position and adjust, or check "No or Low Voltage" above.
	Pilot lights but goes off at end of trial without main burner. 2 flash lock-out after end of trials. Flame is not detected.	Ensure pilot flame is impinging on the thermocouple	No	Check for clogged pilot or injector and
				Check for correct pilot injector. (LP or Nat)
		Is the thermocouple securely connected to the control box?	No	Tighten connection
			Yes	Replace thermocouple
Burner ON	Unit shuts down after flame detected	LED flashing 1 time, no recycle?	Yes	Slow flash, thermocouple hot wait for recycle. Fast flash, internal safety shutdown, cycle power off for 10 seconds before retrying ignition. If problem persists, contact supplier.
		LED flashing 2 times, no recycle?	Yes	Ignition trial lock out. Exceeded 15 trial window without detecting flame. Cycle power off for 10 seconds before retrying ignition. If problem persists, contact supplier.
		LED flashing 3 times, no recycle?	Yes	Maximum flame losses per heat cycle exceeded. Recycle power to reset.
				Ensure pilot flame is impinging on the thermocouple and is adequately sheltered from the wind. If impingement is consistent and no wind present, replace thermocouple.
		LED flashing 4 times, no recycle? (Flame sense fault)	Yes	Turn power off for 10 seconds and back on. If persistent, replace control module
		LED flashing 5 times, no recycle? (Valve Fault)	Yes	Turn power off for 10 seconds and back on. If persistent, check "No or Low Voltage" above. If voltage is okay, replace control module.
		Shuts down before main burner lights	Yes	Check "No or Low Voltage" above
		Shuts down after being on for several minutes or hours and does not relight	Yes	Over temperature - ensure control compartment remains under 175° F. If continued operation above this temperature, life of product will be reduced.
		Unit shuts down for 1 minute every 24 hours	Yes	This is normal operation for validation of safety circuitry.
		LED fast flashing	Yes	Safety shutdown. Cycle power off for 10 seconds before retrying ignition. If problem persists, contact supplier.

TROUBLESHOOTING FLOW DIAGRAM

BEFORE YOU START TROUBLESHOOTING, CHECK IF YOUR UNIT HAS AN ERROR CODE ON THE DIAGNOSTIC LED. NOTE THE CODE, AND THEN CYCLE POWER OFF FOR 10 SECONDS.

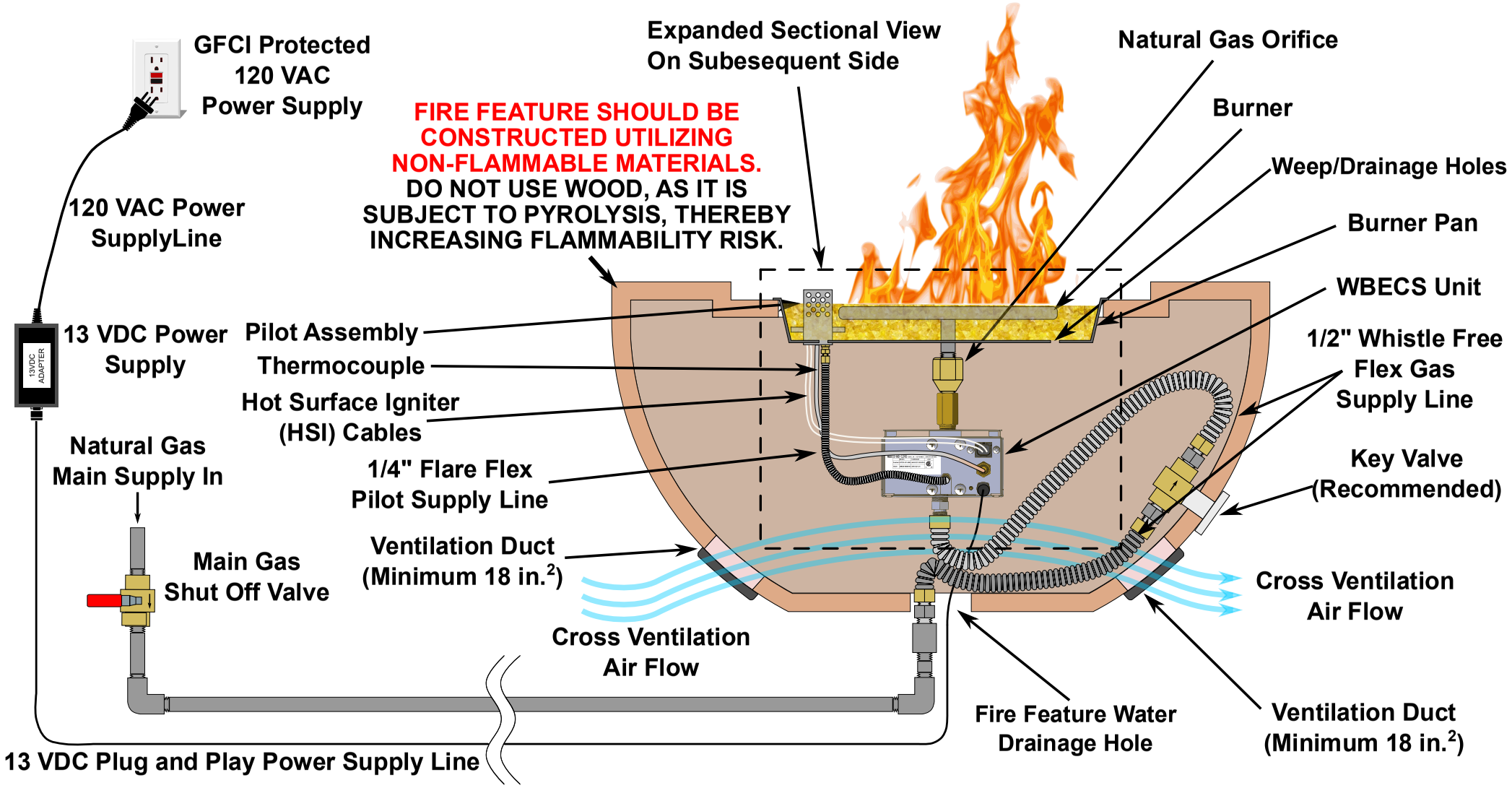



Start Here from Previous Page
Return to Previous Page
Is The HSI Glowing Orange?
No
Yes
Have You Already Made Repairs & Rechecked HSI?
No
Does the pilot turn on after HSI glows orange? You should hear a click when it turns on.
Yes
Can you hear gas flowing from the pilot assembly?
Yes
Allow control to cycle through 5-10 ignition trials to purge air from the lines
No
Contact Supplier for further Troubleshooting.
Turn on main gas supply and retry.
No
Is the main gas supply turned on?
Yes
Did this solve the problem?
Yes
No
Turn off Main Gas Supply
Clear the blockage and retry.
Yes
Is there water in the gas supply line? (Have checked by a plumber with the supply turned off.)
No
Have electrician check amperage at box per instructions on page 18 of the manual.
Is The Diagnostic LED Lit When Powered On?
No
Yes
Have You Already Made Repairs & Rechecked LED?
No
Is there something clogging the pilot? (Have checked by a plumber with the supply turned off.)
Yes
No
Do you have the proper amperage?
Yes
No
Is the HSI connector loose?
Yes
Fully seat the HSI connector on the box.
No
Go to Next Page
Return here from Next Page
Are you getting a flashing error code on the LED?
No
Replace HSI. Contact supplier for Warranty Consideration
Yes
Have electrician check that electrical supply line is proper gauge per table on pg. 7 of the manual.
Is it a fast, consistent flash?
No
Is it a single flash error code?
Yes
Allow the unit to cool before trying again.
Yes
No
Do you have the proper gauge line?
Yes
No
Cycle power off for 10 seconds and retry.
Note the code and contact supplier for further troubleshooting.
Try 3X
Have electrician replace the electrical supply line with proper gauge per table on pg. 7 of the manual.
Does it still fast flash after cycling a few times?
Yes
Replace Control Module. Contact Supplier for Warranty Consideration.
No


Start Here from Previous Page
Return to Previous Page
Unplug Plug and Play Cable at the WBECS Box
Plug in Plug and Play Cable at the WBECS Box
Unplug Plug and Play Cable at the Power Supply
Do You Have ~13 VDC at the Box?
No
Yes
Have You Already Made Repairs & Rechecked Voltage?
Yes
No
Open WBECS Box
Is the fuse blown on the control board?
Yes
Replace the fuse.
No
Control Board Damaged
Replace the control board. Contact supplier for Warranty Consideration.
Close WBECS Box if Open
Plug in Plug and Play Cable at the Power Supply
Yes
Unplug the Power Supply
Do You Have ~13 VDC at the power supply?
No
Yes
Have You Already Made Repairs & Rechecked Voltage?
No
Did you splice into the Plug & Play Cable?
Yes
Have Electrician Check Wiring and Splices. Verify proper wire gauge from table on Page 7 of the manual. Replace as Necessary
No
Replace Plug & Play Cable. Contact supplier for Warranty Consideration
Plug in the Power Supply
Yes
No
Do You Have 110 VAC at the Outlet?
Yes
Have You Already Made Repairs & Rechecked Voltage?
No
Turn on the Switches if Off
Are the upstream switches on?
No
Yes
Are you using the supplied power supply?
Yes
Replace the Power Supply. Contact supplier for Warranty Consideration
No
Have Electrician Check Supply Wiring. Repair as necessary.
Does your power supply conform to specs on page 7 of the manual?
Yes
No
Does the supplied transformer work with the WBECS box?
Yes
Use the supplied power supply or replace with conforming power supply.
No
Close WBECS Box
Did your power supply exceed the voltage rating of the control?
Yes
Open WBECS Box
Is the fuse blown on the control board?
Yes
Replace the fuse.
No
No
Replace the control board. Contact supplier for Warranty Consideration.
Control Board Damaged

Quick Reference Guide

THIS GUIDE IS FOR REFERENCE ONLY, AND IS NOT MEANT TO REPLACE THE INSTRUCTION MANUAL. PLEASE READ THE MANUAL IN ITS ENTIRETY PRIOR TO INSTALLATION.



Appliance cavity shown in ▭ , illustrates the empty cavity free of any media or material of any kind necessary for successful installation. The cavity must remain empty to ensure proper air flow and cooling to the appliance. FAILURE TO FOLLOW THIS INSTRUCTION CAN RESULT IN IRREPARABLE DAMAGE TO THE WBECS UNIT.

COVER FIRE FEATURE/APPLIANCE WHEN NOT IN USE TO PREVENT DAMAGE FROM DEBRIS OR WATER INFILTRATION INTO THE SYSTEM. TAKE CARE WHEN INSTALLING TO ENSURE NO DEBRIS IS INTRODUCED INTO THE VALVE CAVITY TO PREVENT LEAKS.

Weep/Drainage Holes must be present in burner pan and appliance cavity for prevention of water pooling.

Expanded Sectional View From Previous Side

Pilot Assembly Intalled Into Burner Pan Outside the Main Burner at Correct Height Above the Added Media..

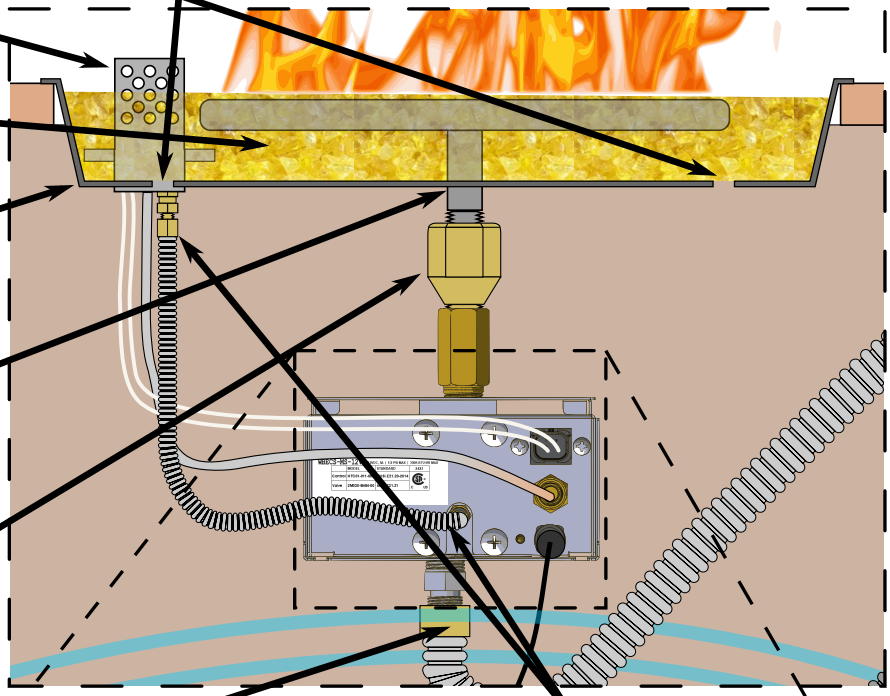
1/2" (Glass or Lava Rock) Media Added to the Main Burner Pan to Just Above the Burner, but Below the Pilot.

Burner pan installed on the lip of a flame retardent material. Ensure the burner pan has weep holes (drainage holes) to prevent water pooling and entering the main burner.

Main Burner Installed Through the Burner Pan Onto the Supplied Natural Gas Orifice.

Natural Gas Orifice Installed Between Outlet Fitting & Main Burner With Thread Sealant on Each Connection. (If using LP, Replace Main Orifice with Air Mixer from FT-LPK kit) Tighten 1.5-3 Turns Past Finger Tight for Each Connection. DO NOT FORCE IF TIGHTENING GETS EXTREMELY DIFFICULT.

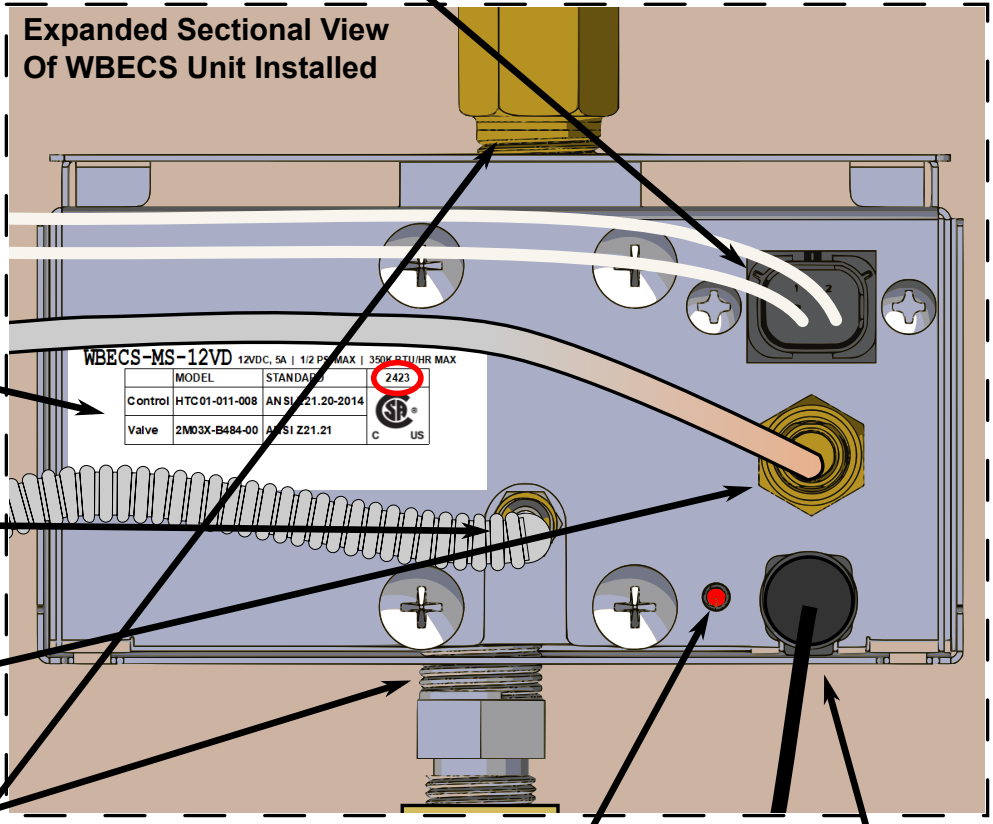
Whistle Free Gas Supply Tube Flare Connections Tighten 1/8-1/4 Turn Past Finger Tight. DO NOT USE THREAD SEALANT!



Hot Surface Igniter (HSI) Connection Press Firmly Until It Clicks

Pilot Tube Flare Connections Tighten 1/8-1/4 Turn Past Finger Tight. DO NOT USE THREAD SEALANT!

Expanded Sectional View Of WBECS Unit Installed



WBECS Label Denoting CSA Standards and Ratings. Date Code (two digit year followed by two digit week number) is circled in red.

Pilot Tube Flare Connection Tighten 1/8-1/4 Turn Past Finger Tight. DO NOT USE THREAD SEALANT!

Thermocouple Connection TIghten 1/4 Turn Past Finger Tight. DO NOT USE THREAD SEALANT ON THERMOCOUPLE CONNECTION.

Stock Inlet & Outlet Fittings. DO NOT REMOVE. REMOVAL/ REPLACEMENT CAN RESULT IN VOIDING OF WARRANTY. CONTACT SUPPLIER PRIOR TO REMOVAL/REPLACEMENT.

Diagnostics LED

13 VDC Plug and Play Power Supply

ARCHPOT FIRE FEATURE MOUNTING BRACKET REQUIREMENTS

ITEMS LISTED BELOW REQUIRES THE INSTALLATION OF THE APF MOUNTING BRACKET

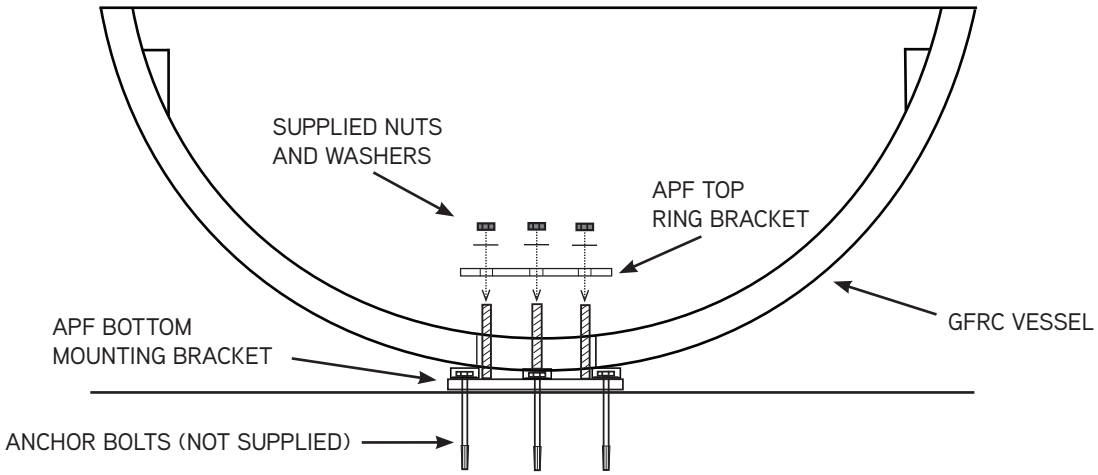
This is needed to secure the vessel and allow for ventilation and drainage.

Warranty is voided if the mounting bracket is not installed on required models:

- **GEO ROUND -** Sizes: 24", 31", 36", 48", 60" (Except 31" Fire Bowl)
- **GEO SQUARE -** Sizes: 24", 30", 36" (Except 30" Fire Bowl)
- **LEGACY ROUND -** Sizes: 24", 30", 36", 42", 48"
- **LEGACY SQUARE -** Sizes: 30", 36"

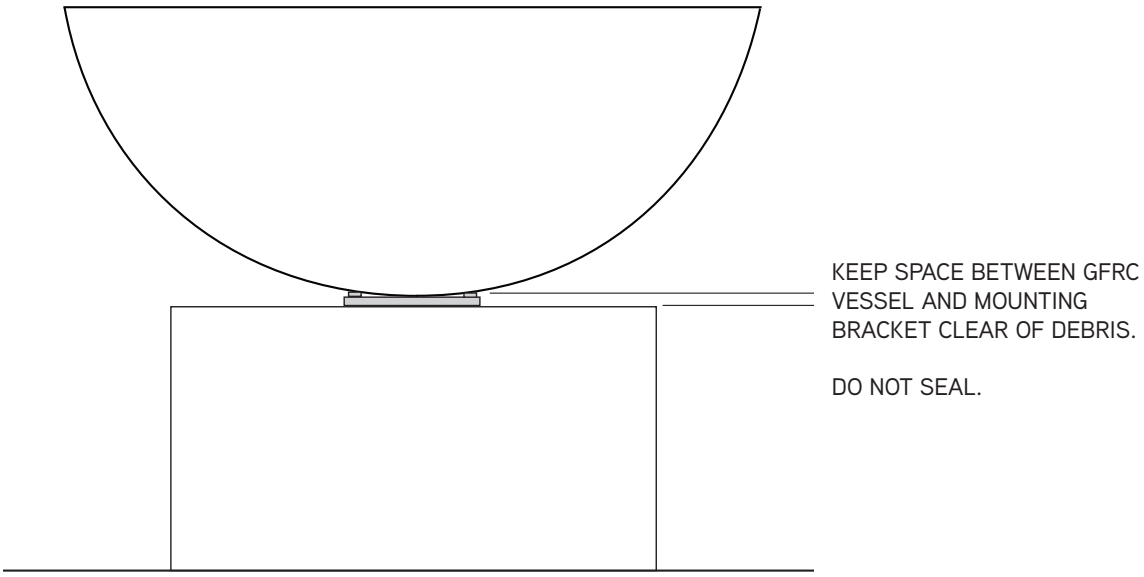
Installation - Install the Fire Feature as shown in Figures 1 through 3.
Install the mounting bracket as shown in **Figure 1**. Using appropriate anchor bolts, (not supplied), secure the APF bottom bracket to a suitable, stable permanent surface. Place the GFRC vessel over the bottom bracket so the all thread is accessible from top of vessel. Attach the APF top ring bracket using the supplied bolts. Do not seal open space between mounting bracket and vessel as shown in **Figure 2.**

Figure 1



NOTE: Drainage MUST be provided in the bottom of each bowl.

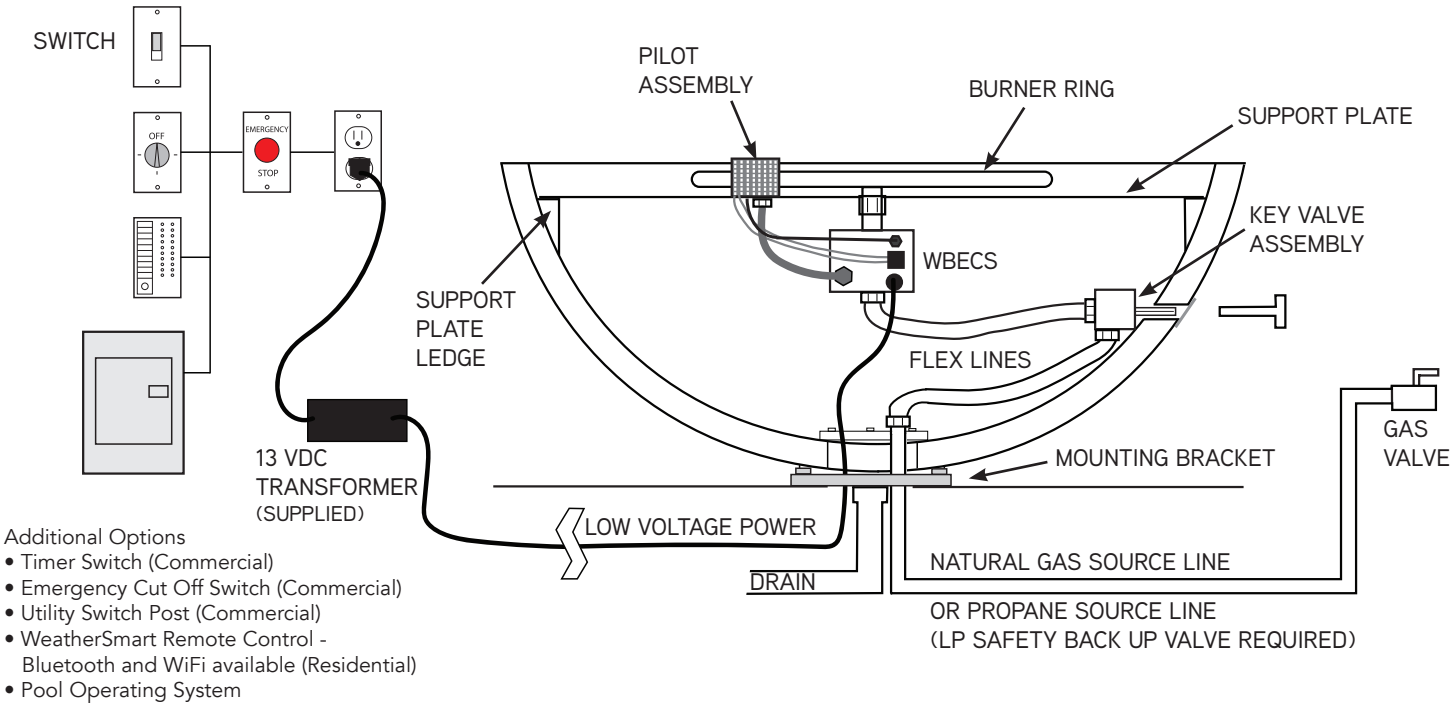
Figure 2



ARCHPOT FIRE BOWL MOUNTING BRACKET REQUIREMENTS

Installation - continued from Page 22

Figure 3



Additional Options
- Timer Switch (Commercial)
- Emergency Cut Off Switch (Commercial)
- Utility Switch Post (Commercial)
- WeatherSmart Remote Control - Bluetooth and WiFi available (Residential)
- Pool Operating System

Installation must conform with local codes or, in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1 / NFPA 54, or International Fuel Gas Code. The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electric Code, ANSI/NFPA 70, if applicable.

ARCHPOT

ARCHITECTURAL SITE FURNISHINGS

ARCHPOT
508 Bateman Circle
Corona, CA 92880

Phone: (714) 895-3359

www.archpot.com